

~~SECRET~~

F-02368

NPIC/TDS/D-1128-67  
9 November 1967

MEMORANDUM FOR: Chief, Procurement Division, OL

ATTENTION :

THROUGH :

SUBJECT :

[REDACTED]

Chief, Support Staff, NPIC

Request for Proposals for Production Versions of a Twin  
Light Source Light Table with Measuring Stage

1. It is requested that copies of the enclosed Technical Specifications entitled Twin Light Source Light Table with Measuring Stage be sent to [REDACTED] for a quotation for fabrication of production versions in quantities of 20, 40, and 60 units. [REDACTED] should be instructed to submit their proposal prior to 1 January 1968 in response to the requirements set forth in the specifications.

2. The Agency association with this project is CONFIDENTIAL.

3. The nature of the work of fabricating the units is UNCLASSIFIED.

4. In your communications with [REDACTED] it is requested that they be notified that the project number to be used in conjunction with this project will be furnished at the time of contract negotiation.

[REDACTED]  
Colonel, USAF

Assistant for Technical Development, NPIC

## Distribution:

- Orig & 1 - Addressee
- 1 - NPIC/A/TD
- 1 - NPIC/SS
- 3 - NPIC/TD/DS

Declass Review by NGA.

NPIC/TDS/DS [REDACTED] (9 Nov 67)

~~SECRET~~GROUP 1  
Excluded from automatic  
downgrading and  
declassification

~~SECRET~~

7 November 1967

TECHNICAL SPECIFICATIONS FOR PRODUCTION UNITS OF A TWIN  
LIGHT SOURCE TABLE WITH MEASURING STAGE

1. INTENT

X1 The purpose of this project is to fabricate a production version of the Twin Light Source Light Table (TSLT) with a Measuring Stage, which will be utilized with the [ ] Zoom 70 equipped with the [ ] Wide Span Rhomboid Attachments or the [ ] Zoom 240 Microstereoscope. All of the features of the light table must be compatible with the performance characteristics of the above named instruments. The Sponsor will furnish to the Contractor one [ ] Zoom 70 equipped with the Wide Span Rhomboids for a period of three weeks during the contract.

25X

25X

2. MECHANICAL IMPLEMENTATION

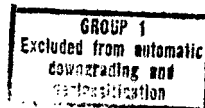
X1 The basic concept and general construction of the subject light table will be similar to that prototype instrument developed under US Government Contract [ ] and generally as outlined in [ ] Proposal No. SME-CG-58. The following major differences are to be noted:

25X

2.1. Stage Translation - The translation of the scanning stage will exhibit two characteristic types of motion; (1) a precise screw driven type and (2) a free body type.

X1 2.1.1. Precise Measuring Motion - This motion, which is associated with the measuring function, shall be completely smooth and free from "chatter" or non-uniform drag. When viewing through the microstereoscope at any magnification up to 60X the image shall move in a smooth and uniform manner without perceivable "jumping" or "jerking." The smoothness of motion as exhibited on the microscope stage of a [ ] Dynazoom Microscope or equivalent will be acceptable. Backlash in the screw motion must be reduced to an absolute minimum between the handwheels, the scanning stage, and the counters. In no case shall it exceed 0.00001 ft. There must be no "dead zone" in the handwheel rotation, i.e., screw motion. The measuring range shall be + 2.0 inches in X and + 1.5 inches in Y. The measuring counters shall read directly in portions of a foot and the measuring accuracy shall be + .0001 foot plus 0.1% of the distance travelled.

2.1.2. Free Body Motion - A quick, but positive, mechanically stable disengaging mechanism will be provided to disconnect the stage from the precise measuring screws. This mechanism will allow the operator to quickly and simply lock the stage in the disengaged mode or allow him to simply disengage momentarily for one repositioning operation and upon release the mechanism will automatically lock the stage onto the screw drive mechanism--the engaging-dis-

~~SECRET~~

SECRET

Approved For Release 2005/02/17 : CIA-RDP78B04770A000100090007-6

engaging mechanism on the present prototype is not acceptable because it is neither positive or mechanically stable. When the stage is in the free body mode the stage movement will be that attributed to a free body; that is, a constant force applied along any direction parallel to the plane of the glass stage plate will produce a free body motion of constant velocity diminished only by a uniform friction component. Motion along any vectorial direction should require the same force component along a direction parallel to the ways. This motion should also be "chatter" or "jerk" free. When the scanning stage is translated in the free body mode, there shall be no rotation (oscillation) of the stage. The motion on the current prototype is not acceptable.

2.1.3. Note: It is essential that both of these motions remain orthogonal throughout their total ranges to within  $\pm 0.00005$  ft/in. (2' of arc)--a characteristic not exhibited by the prototype.

2.2. Microstereoscope Mounting and Translation Assembly - The microstereoscope translation slide must be firmly and securely attached to the main structural elements of the light table. Previously it was attached to a sheet metal section of the skin, thereby allowing the translation assembly and vertical post mount to "flex" relative to the light table. The slide assembly must be capable of being locked along any position of the slide. This lock must be so designed that it will not introduce tilt into the microstereoscope support assembly when it is applied, thereby reducing the degree of collimation between the microstereoscope support and the scanning stage, and should be positioned in a readily accessible location. When the lock is applied the microstereoscopic images shall remain in sharp focus even at the maximum magnification. The deflection of the translation slide (measured at any corner of that slide) when the lock is applied shall be no more than 0.0005 inch. The light table will be furnished with a  Focusing Stand in accordance with  drawing 53990739-100. When a force is applied parallel to the microstereoscope support rod at the point on the  Focusing Stand most extreme from that rod, a deflection of no more than .001 inch/lb of force will occur. The focusing assembly will be collimated in accordance with the above listed microstereoscopes' requirement to allow (1) scanning over the entire stage without noticeable focal shift, and (2) movement of the microstereoscope slide without noticeable focal shift. The Focusing Stand will be collimated to the Film Translation Stage to within 30" of arc. This means that the machined microstereoscope mounting surface of the Focusing Stand shall be collimated to the film stage within 30 seconds of arc between the two surfaces throughout the total travel of the Film Stage and the Microstereoscope Translation Assembly.

2.3. The Light Source - At maximum intensity, the brightness of each of the two light sources shall be no less than 3700 ft lamberts. This intensity shall be continuously variable to a minimum brightness of 600 ft lamberts. These brightness values shall not decrease by more than 10% within the first 3000 hours of operation and by no more than 25% within the first 5000 hours. Under no circumstances will there be perceptible flicker of the light sources at any of the brightness settings.

SECRET

SECRET

2.4. System Vibration - The light table and microstereoscope support assembly must be constructed so that no visible vibration is introduced between the object (film) and image (microstereoscope eyepiece) planes as viewed at 100X.

2.5. Temperature - The maximum film plane temperature after ten hours of continuous operation at maximum light source intensity, with a fogged silver halide film of a density of 2.0 completely covering the illuminated area, will be no higher than 100°F when operated in an ambient condition of no less than 75°F. No other surface on the outside of the light table shall exceed 100°F under the same operating conditions.

2.6. The weight of the light table shall not increase by more than five pounds over that of the prototype. The size shall not exceed 22 inches wide by 22 inches deep by 6 inches high (without microstereoscope mounting posts).

2.7. The X, Y handwheels shall be fabricated to be solid, with a small indentation drilled near the outside edge. This will facilitate easy turning with one finger.

2.8. The glass portion of the stage shall be made easily removable so that the lower portions can be cleaned. Spring clips or some other mechanical arrangement shall be used instead of the removable screws.

### 3. GENERAL

X1 All features and characteristics currently exhibited in the prototype light table built under [ ] shall be maintained except as modified by this document.

3.1. General Warranty - Except as specified above, the light table will be warranted for a period of 90 days after final acceptance.

3.2. The production contract will call for the delivery of one fully acceptable unit prior to entering into a production run.

3.3. Instruction and maintenance manuals and a list of spare parts per instrument will be considered as a part of this contract. Three (3) copies each of an operator's manual and maintenance manual, with a list of replaceable parts, shall be provided for each TLSLT light table. These manuals shall be engineering type and shall contain appropriate schematic diagrams, illustrations, and instruction to satisfactorily operate and maintain the equipment at the operational level.

3.4. The methods and techniques of workmanship used in fabrication and assembly of parts, sub-assemblies, and assembly of the TLSLT light table, shall be consistent with accepted standards for high quality mechanical-electro-optical equipment. Mass production methods will be used where possible, provided operational reliability will not be impaired

SECRET

SECRET

3.5. The general warranty will include the implied warranties of merchantability for the ordinary purpose of employing the light table in the photo interpretation process and fitness for the particular purpose of utilizing the instrument with the above named optical instruments.

SECRET